College of Arts and Sciences
Department of Physics
Course Syllabus

3 Credit Hours
PHYS–154: General Physics II

I. Course Description

General Physics II is a calculus - based physics course for science majors. That is, this course is designed for physical science, mathematics and computer science majors, and is a continuation of General Physics I. Course content for General Physics II includes topics on electricity and magnetism, optics and modern physics. Class meetings include three one-hour lectures, and a one hour problem session per week (4 contact hours). Prerequisites: PHYS 153, PHYS 153L. Co-requisites: Physics 154L or completion of Physics 154L.

II. Rationale

This course introduces the student to the principles of electricity and magnetism and to geometric and wave optics. It lays the foundation for the student's education in subsequent advanced courses.

III. Competencies

- *Personal and Professional Responsibility*. Students will demonstrate personal and professional proficiencies in pursuit of academic excellence in all courses pursued.

- *Subject Matter and Presentation Skills.* Performance in courses as evidenced by final grades will document success levels in the mastery of subject matter, written and oral communication skills.

- *Planning and Organization*. Students will demonstrate ability to plan and organize personal and professional skills. Students will also demonstrate an ability to generalize techniques to structure activities that will impact teaching and learning.

IV. Behavioral Objectives

At the end of this course, the student will be able to:

- Understand the importance of the principles of electricity and magnetism and optics to other academic and scientific disciplines.

- Understand the importance of the principles of electricity and magnetism and optics to the community.

- Demonstrate the principles of electricity and magnetism and optics in a laboratory setting.

- Analyze laboratory data and present findings in a written report.

- Relate the principles of electricity and magnetism and optics to the community.

V. Course Content

- Electric Forces and Electric Fields
- Electric Potential and Capacitance
- Current and Direct Current Circuits
- Magnetism
- Induced Voltages and Inductance
- Oscillatory Motion
- Wave Motion
- Superposition and Standing Waves
- Electromagnetic Waves
- Reflection and Refraction of Light
- Mirrors and Lenses
- Interference of Light Waves
- Diffraction and Polarization

VI. Learning Activities

Lecture/Note-taking
Solving Textbook Problems in Physics
Performing Laboratory Experiments
Writing Lab Reports

VII. Special Course Requirements

This course is composed of three one-hour lectures, and a one hour problem session per week. Accompanying this course is a two-hour per week laboratory, which requires separate registration.

VIII. Evaluation Procedures

Homework assignments will be given at the beginning of each chapter. There will be approximately one class quiz per chapter. Class tests are given normally after three or four chapters. The time of the test is announced in advance. There will be one mid-semester exam and one final exam. These exams are cumulative.

Methods

Students will be evaluated based on their performance in examinations (including comprehensive final examination), quizzes, homework, and class participation and activities.

Grading Scale:

HOMEWORK: During each class period, homework will be assigned and it is expected that each student will complete it as much as possible. If there are any questions, you can come and see me during my conference hours or make an appointment. First several minutes of lecture period will be utilized to answer questions regarding homework assignment.

QUIZZES: There will be no make up for quizzes. Quizzes can be given at any time during the class period and last approximately 5 minutes. Arriving at class promptly is important.

TESTING: There will be 3 major tests and a comprehensive mid-semester and final examination. All students are required to take every exam when scheduled. **No makeup will be given unless there is an emergency and/or arranged in advance. No more than one makeup per student will be allowed during the semester.**

CLASS OBSERVATION AND PARTICIPATION OF STUDENT

A small percentage (5 %) of your grade will be bases on my observation of you as a student. That is; attendance, attitude, willingness to participate in class, and what I characterize as satisfactory progress. Attendance will be taken at the beginning of each class. The GSU attendance policy will be followed (refer to the GSU Catalog).

GRADING: Each Test will be 100 Points
The Mid-semester (comprehensive) and Final examinations (comprehensive) will be 200 points each. , Quizzes, homework and individual/group activities will constitute 100 points each.

At the end of the semester, the final grade will be determined based on the ratio of point awarded to that of total possible points, using the following scale:

90 -100 A, 80 - 89 B, 70 - 79 C, 60 - 69 D, 0 - 59 F

Cheating will not be tolerated in any form. As a minimum, students will be given a grade of zero for any quiz or exam in which cheating, fraud, or mis-representation is found.

IX.References

Textbook:

Raymond A. Serway and Robert J. Beichner, *Physics for Scientists and Engineers, 5th Ed.*, Saunders College Publishing, Fort Worth, 2000.

Recommended Journals

The Physics Teacher
Physics Today
Computing in Science & Engineering
Journal of Undergraduate Research
Journal of College Science Teaching

ADA Assurance Statement

Grambling State University adheres to all applicable Federal, State and Local laws, regulations, and guidelines with respect to providing reasonable accommodations, for students with disabilities. Students with disabilities should register with the ADA student services coordinator and contact their instructor(s) in a timely manner to arrange for appropriate accommodations. If you need accommodations in this class related to a disability, please make an appointment as soon as possible.

ALL CELL PHONES ON SILENCE OR TURNED OFF.